

We claim:

1. A substantially purified nucleic acid molecule that encodes a maize or a soybean enzyme or fragment thereof, wherein said maize or soybean enzyme is selected from the group consisting

of:

- (a) triose phosphate isomerase;
- (b) fructose 1,6-bisphosphate aldolase;
- (c) fructose 1,6-bisphosphate;
- (d) fructose 6-phosphate 2-kinase;
- (e) phosphoglucosomerase;
- (f) vacuolar H⁺ translocating-pyrophosphatase;
- (g) pyrophosphate-dependent fructose-6-phosphate phosphotransferase;
- (h) invertase;
- (i) sucrose synthase;
- (j) hexokinase;
- (k) fructokinase;
- (l) NDP-kinase;
- (m) glucose-6-phosphate 1-dehydrogenase;
- (n) phosphoglucomutase; and
- (o) UDP-glucose pyrophosphorylase.

2. The substantially purified nucleic acid molecule according to claim 1, wherein said nucleic acid molecule comprises a nucleic acid sequence selected from the group consisting of SEQ ID NO: 1 through SEQ ID NO: 2814.

3. A substantially purified maize or soybean enzyme or fragment thereof, wherein said maize or soybean enzyme is selected from the group consisting of:

- (a) triose phosphate isomerase or fragment thereof;

- (b) fructose 1,6-bisphosphate aldolase or fragment thereof;
- (c) fructose 1,6-bisphosphate or fragment thereof;
- (d) fructose 6-phosphate 2-kinase or fragment thereof;
- (e) phosphoglucoisomerase or fragment thereof;
- (f) vacuolar H⁺ translocating-pyrophosphatase or fragment thereof;
- (g) pyrophosphate-dependent fructose-6-phosphate phosphotransferase or fragment thereof;
- (h) invertase or fragment thereof;
- (i) sucrose synthase or fragment thereof;
- (j) hexokinase or fragment thereof;
- (k) fructokinase or fragment thereof;
- (l) NDP-kinase or fragment thereof;
- (m) glucose-6-phosphate 1-dehydrogenase or fragment thereof;
- (n) phosphoglucomutase or fragment thereof; and
- (o) UDP-glucose pyrophosphorylase or fragment thereof.

4. A substantially purified maize or soybean enzyme or fragment thereof according to claim 3, wherein said maize or soybean enzyme or fragment thereof is encoded by a nucleic acid molecule comprising a nucleic acid sequence selected from the group consisting of consisting of SEQ ID NO: 1 through SEQ ID NO: 2814.

5. A transformed plant having a nucleic acid molecule which comprises:
- (A) an exogenous promoter region which functions in a plant cell to cause the production of a mRNA molecule;
 - (B) a structural nucleic acid molecule comprising a nucleic acid sequence selected from the group consisting of
 - (a) a nucleic acid sequence that encodes for triose phosphate isomerase or fragment thereof;
 - (b) a nucleic acid sequence that encodes for fructose 1,6-bisphosphate aldolase or fragment thereof;
 - (c) a nucleic acid sequence that encodes for fructose 1,6-bisphosphate or fragment thereof;
 - (d) a nucleic acid sequence that encodes for fructose 6-phosphate 2-kinase or fragment thereof;
 - (e) a nucleic acid sequence that encodes for phosphoglucisomerase or fragment thereof;
 - (f) a nucleic acid sequence that encodes for vacuolar H⁺ translocating-pyrophosphatase or fragment thereof;
 - (g) a nucleic acid sequence that encodes for pyrophosphate-dependent fructose-6-phosphate phosphotransferase or fragment thereof;
 - (h) a nucleic acid sequence that encodes for invertase or fragment thereof;
 - (i) a nucleic acid sequence that encodes for sucrose synthase or fragment thereof;
 - (j) a nucleic acid sequence that encodes for hexokinase or fragment thereof;

- (k) a nucleic acid sequence that encodes for fructokinase or fragment thereof;
- (l) a nucleic acid sequence that encodes for NDP-kinase or fragment thereof;
- (m) a nucleic acid sequence that encodes for glucose-6-phosphate 1-dehydrogenase or fragment thereof;
- (n) a nucleic acid sequence that encodes for phosphoglucomutase or fragment thereof;
- (o) a nucleic acid sequence that encodes for UDP-glucose pyrophosphorylase or fragment thereof; and
- (p) a nucleic acid sequence which is complementary to any of the nucleic acid sequences of (a) through (o); and
- (C) a 3' non-translated sequence that functions in said plant cell to cause termination of transcription and addition of polyadenylated ribonucleotides to a 3' end of said mRNA molecule.
6. The transformed plant according to claim 5, wherein said structural gene is complementary to any of the nucleic acid sequences of (a) through (o).

add
A3

ADD
B2